

Friday May 13th - 10h00

Amphithéâtre du C2N

“Nanoparticle formation in low-pressure microwave plasma”

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In this talk, we give an overview of the main mechanisms occurring during nanoparticles formation in non-thermal plasmas especially when microwave excitation is used. This work aims at addressing questions about the formation of carbon or tungsten dust nanoparticles in fusion devices (tokamak).

The kinetic pathways leading to nanoparticle will be described from experimental observations using complementary gas-phase spectroscopic diagnostics coupled with ex-situ analyses of nanoparticle size distribution, density and morphology. The discussion based on experimental results will be supported by briefly introducing some models developed specifically to get insights in the complex physico-chemistry involved in nanoparticle formation in non-equilibrium plasmas.

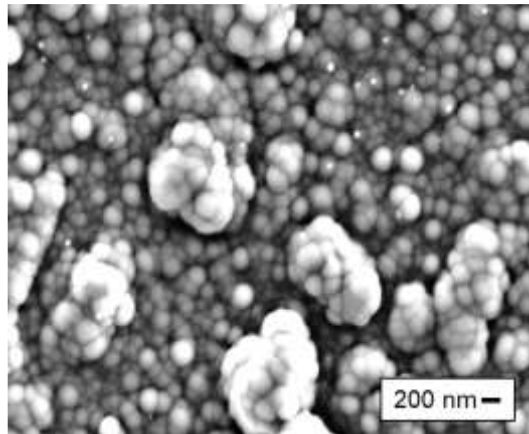


Figure caption: Example of a SEM micrograph showing carbon nanoparticles deposited on Si substrate using Ar:C₂H₂ plasma process.

Karim Ouaras is a CNRS researcher at LPICM, working in plasma processing for III-V epitaxy. He obtained his PhD in plasma science from University Sorbonne Paris Nord (LSPM lab) in 2016. After his PhD, he did several post-docs around plasma physics, gas phase spectroscopy and material science (carbon, tungsten, silicon, polymers), successively at University Paris Sud - Orsay; LPICM; Stanford University and University of Cambridge). To date, he has published 20 peer-reviewed articles.

